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Employee Green Behavior: A Theoretical Framework, Multilevel Review, and Future Research Agenda

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Abstract

We propose a conceptual model based on person–environment interaction, job performance, and motivational theories to structure a multilevel review of the employee green behavior (EGB) literature and agenda for future research. We differentiate between required EGB prescribed by the organization and voluntary EGB performed at the employees' discretion. The review investigates institutional-, organizational-, leader-, team-, and employee-level antecedents and outcomes of EGB and factors that mediate and moderate these relationships. We offer suggestions to facilitate the development of the field, and call for future research to adopt a multilevel perspective and to investigate the outcomes of EGB.

Keywords

proenvironmental, behavior, organization, multilevel, review, workplace, green, sustainability, employee

Environmental sustainability is emerging as a critical component of corporate existence in the 21st century (Starik & Marcus, 2000). In this review, we examine the factors that contribute to employee green behavior (EGB): a workplace-specific form of proenvironmental behavior. Ones and Dilchert (2012a) define EGB as any measureable individual behavior that contributes to or detracts from environmental sustainability goals in the work context. Ones and Dilchert (2012b) argue that EGBs are an essential component of organizational environmental sustainability (see also Andersson, Jackson, & Russell, 2013).

We structure our article in three parts. In the first part, we introduce key concepts and propose an integrative conceptual framework (Figure 1) based on person–environment (Lewin, 1951), job performance (Blumberg & Pringle, 1982), and motivational (Deci & Ryan, 1985) theories. In the second part, we systematically review previous empirical research on the nature of and factors associated with both required EGB and voluntary EGB across multiple levels of analysis. Last, we discuss what is known and unknown about EGBs and outline an agenda for future research based on our proposed model.

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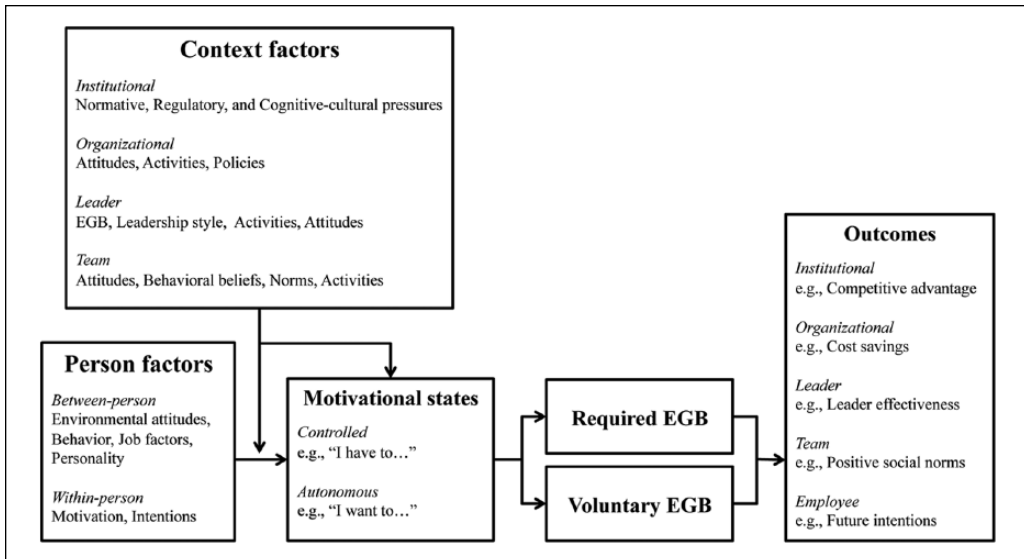


Figure 1. Integrated multilevel model for employee green behaviors.

We seek in particular to extend previous reviews of workplace environmental behavior (see Lo, Peters, & Kok, 2012; Lülfs & Hahn, 2014; Young et al., 2013) in four key ways. First, we distinguish between behaviors required as part of an employee's role from behaviors that are voluntary. Recent empirical research has supported such a distinction (Bissing-Olson, Fielding, Iyer, & Zacher, 2013; Norton, Zacher, & Ashkanasy, 2014). Second, we investigate how factors that are conceptualized at the institutional, organizational, team, leader, and employee levels influence the different types of EGB, and we examine how EGBs in turn influence outcomes at these levels. Multilevel theories and methods have become increasingly popular in the organizational literature since their introduction 15 years ago to the mainstream organizational literature by Hofmann, Griffin, and Gavin (2000) and Kozlowski and Klein (2000), yet multilevel research on EGB seems to be still in its infancy (e.g., Bissing-Olson, Fielding, & Iyer, 2015; Bissing-Olson, Zacher, Fielding, & Iyer, 2012; Kim, Kim, Han, Jackson, & Ployhart, 2014; Norton, Zacher, & Ashkanasy, 2012). Third, a comprehensive investigation of EGB requires a detailed description of its nomological net, and in particular the direction of relationships with other relevant factors. To this end, we review the antecedents and consequences of EGB, the mediating mechanisms that might help us explain these relationships, and the moderating conditions that affect the existence and strength of these relationships (see Aguinis & Glavas, 2012, for a similar approach to corporate social responsibility). Fourth, we propose a theory-based conceptual framework (Figure 1) based on person–environment (Lewin, 1951), job performance (Blumberg & Pringle, 1982), and motivational (Deci & Ryan, 1985) perspectives. We also propose a research agenda to guide the next phase of research in this area. In sum, we aim to provide a comprehensive perspective on required and voluntary EGB.

Conceptualization of Green Behavior in the Workplace

Research on green behavior in the workplace (see Paillé & Boiral, 2013; Ramus & Steger, 2000) and at home (see Steg & Vlek, 2009) has typically conceptualized it as *voluntary* behavior. Organizational psychologists recognize however that not all EGB is discretionary (Ones & Dilchert, 2012b). In this regard, Ones and Dilchert (2012a) offer a job performance-based

taxonomy of EGB with five categories: (1) working sustainably, (2) conserving resources, (3) influencing others, (4) taking initiative, and (5) avoiding harm. While this taxonomy implicitly accepts the presence of required as well as voluntary behavior, the categories themselves are not mutually exclusive, thus allowing for a behavior to belong to more than one group.

In this review, we adopt a simpler, though (we argue) potentially more useful, taxonomy with mutually exclusive groups based on the concepts of task and contextual (or citizenship) performance (Borman & Motowidlo, 1993; Organ, 1997; Rotundo & Sackett, 2002). Specifically, we make a distinction between behavior that is *required* and contributes to core business goals and behavior that is *voluntary* and contributes instead to the organizational, social, and psychological environment that provides the context for task performance (cf. Borman & Motowidlo, 1993). Such a classification allows for the distinction between workplace green behavior and private-sphere green behavior. The two types of EGB can be found to the right of Figure 1.

Required EGB. As Schmit, Fegley, Esen, Schramm, and Tomassetti (2012) point out, companies are seeking to improve their environmental performance by introducing green jobs and duties. Ones and Dilchert (2012b) report that between 13% and 29% of EGBs identified in U.S. and European samples are required by the organization or part of an employee's job duties. We define *required EGB* as green behavior performed within the context of employees' required job duties (see also the Bissing-Olson et al., 2013, concept of *task-related* EGB). This includes adhering to organizational policies, changing methods of work including choosing responsible alternatives, and creating sustainable products and processes. The concept of required EGB is similar to task performance (Borman & Motowidlo, 1993), which refers to behavior required of employees by their employer and contributes either directly or indirectly to core business.

Voluntary EGB. Employees can also choose to go beyond what is required by the organization with regard to environmental behavior. We define *voluntary EGB* as green behavior involving personal initiative that exceeds organizational expectations. This includes prioritizing environmental interests, initiating environmental programs and policies, lobbying and activism, and encouraging others. The concept of voluntary EGB aligns closely with the notions of contextual performance and organizational citizenship behavior, which refer to behaviors that support the organizational, social and psychological environment in which task performance takes place (Borman & Motowidlo, 1993; Organ, 1997). Notably, it is this notion of discretionary green behavior that has tended to dominate the literature to date (Norton, Zacher, & Ashkanasy, 2015).

Antecedents, Moderators, Mediators, and Outcomes

As we noted earlier, we also review factors presented as antecedents, moderators, mediators, and outcomes related to EGB. In this section, we present several major theoretical frameworks explaining EGB. Our intention is to introduce the key factors used to explain the emergence of EGB. We also deal with the outcomes of EGBs. This is in contrast to theories of EGB that have traditionally only focused on antecedents, mediators, and moderators, and have tended to neglect outcomes. Outcomes are presented on the far right of Figure 1.

Organizational sustainability theorists (e.g., see Ramus & Killmer, 2007; Stern, 2000; Young et al., 2013) typically propose alternative explanations for how and why EGBs manifest. In this review, we identify four distinct theoretical approaches to this study: (1) attitudinal, (2) normative, (3) exchange, and (4) motivational.

Attitudinal theories are based in the idea that individuals are likely to pursue activities that correspond with favorable internal attitudes toward, in this case, the natural environment. For example, a central tenet of Ajzen's (1991) theory of planned behavior is a positive relationship between attitudes and behavior. In Ajzen's theory, attitudes are regarded as necessary but insufficient, requiring that individuals also possess beliefs surrounding behavioral control and be

aware of social norms in order to perform a behavior. The theory of planned behavior is one of the most prominent frameworks for explaining environmental behavior in both the private (Bamberg & Möser, 2007) and work (Unsworth, Dmitrieva, & Adriasola, 2013) contexts. Attitudes may also act as a moderator of relationships between EGB and factors at other levels. For example, Bissing-Olson et al. (2013) demonstrate that proenvironmental attitudes moderate the effect of positive affect on EGB, such that there is a stronger relationship between positive affect and EGB for individuals who possess more negative environmental attitudes.

Normative theories focus on the extent to which a behavior is seen to be socially acceptable. For example, in the theory of normative conduct, Cialdini, Reno, and Kallgren (1990) propose that norms guide behavior by emphasizing the social consequences of participating (or not participating) in particular activities. Sustainability research based in this theory has mostly focused on green behavior in the private sphere (e.g., see Cialdini et al., 1990). In a recent exception, Norton et al. (2014) examined employee perceptions of organizational norms to explain EGB.

Exchange theories also focus on the role of interactions, particularly the reciprocity between an individual and some other entity, such as leaders or groups (Cropanzano & Mitchell, 2005). Within this perspective, behavior is assumed to be driven by obligations engendered via interdependent relationships, such as those between leaders and followers (Emerson, 1976). These obligations in turn are driven by “rules of exchange” (Cropanzano & Mitchell, 2005, p. 875), which include reciprocity (payback), negotiated outcomes (quid pro quo), altruism, and group goals. Social exchange theory has recently been applied to explain the nature of environmental citizenship behavior (Paillé & Boiral, 2013; Paillé, Boiral, & Chen, 2013; Paillé, Mejía-Morelos, Marché-Paillé, Chen, & Chen, 2015). Temminck, Mearns, and Fruhen (2013) also used this perspective to hypothesize that reciprocity between employees and the organization may mediate the effect of environmental attitudes on environmental citizenship behavior.

Motivation theories are structured around the factors that drive the decision to engage in particular behavior, as well as the intensity and persistence of effort demonstrated. For example, in self-determination theory, Deci and Ryan (1985) posit that behavior is the result of autonomous and controlled motivations. In Deci and Ryan’s view, an employee is motivated toward engaging in EGB if they derive personal satisfaction from doing so (autonomous motivation), or if they believe the company will reward them (controlled motivation). Graves, Sarkis, and Zhu (2013) used self-determination theory to explain EGB as encompassing autonomous motivators such as attitudes and values, as well as controlled motivators such as environmental management systems and rewards. In sum, the literature appears to have adopted a broad range of theoretical perspectives to explain EGB.

Our Conceptual Model of Employee Green Behavior

In this section, we describe the key components of the conceptual framework in Figure 1. First, our model is based on the well-established perspective that performance is the function of a person and their environment (or context; see Lewin, 1951). More specifically, within this view, behavior is a product of an actor’s capacity and general willingness to perform, together with contextual factors outside of the actor’s control (Blumberg & Pringle, 1982).

Second, job performance includes required (i.e., task) and voluntary (i.e., citizenship) behaviors. Empirical evidence demonstrates that these types of performance have different patterns of association with antecedents and make unique contributions to overall job performance (Motowidlo & Van Scotter, 1994). By using a job performance-based approach, we conceptualize EGB as a *specific type of job performance* that aligns with environmental sustainability, and not as proenvironmental behavior when it happens to be performed in the workplace. Central to our approach is an appreciation of the role factors beyond an individual actor’s control play in behavior, particularly in contexts where the actor may have less control over her or his actions, such as in the workplace.

Third, we propose that motivational states constitute the mechanism through which context and person factors influence behavior. According to Deci and Ryan (1985, 1987), the motivation to engage in a behavior can be autonomous or controlled. On the one hand, autonomous motivation features a sense of autonomy and the experience of choice (Deci & Ryan, 2000). Thus, subsequent behavior is likely to be borne out of a sense that the actor actually *wants to* engage in the behavior. Autonomous motivation is linked with prosocial behavior and is likely to promote citizenship performance (Gagné & Deci, 2005). On the other hand, behaviors that are not interesting or intrinsically motivating require external regulation. The enactment of dull or boring tasks, such as those that might be required as part of an employee's role, depends on the perception that a desired outcome (e.g., obtaining a reward, avoiding punishment) is contingent on performance (Gagné & Deci, 2005). Thus, controlled motivation features a sense of pressure and the experience of obligation (Deci & Ryan, 2000). Thus, subsequent behavior is likely to be driven by a sense that the actor *has to* behave a particular way.

We posit that required and voluntary EGB may differ with regard to the motivational states that precede performance. Specifically, we see required behavior to be driven by controlled motivation, whereas voluntary behavior is activated by autonomous motivation. In this approach, we would expect that the interaction of strong proenvironmental attitudes (a personal factor) and green transformational leadership (a contextual factor) to produce an autonomous motivational state where an employee wants to do something for the environment, which would then result in the performance of voluntary EGB. Accordingly, we would expect the interaction of beliefs toward organizational environmental policies (another personal factor) and transactional leadership (another contextual factor) to produce a controlled motivational state whereby an employee might feel she/he has to do something for the environment, which would then result in the performance of required EGB.

Finally, we argue that a multilevel approach is vital to enhance our understanding of environmental sustainability in organizational contexts (Bissing-Olson et al., 2015; Starik & Rands, 1995). Consequently, we categorize the factors associated with EGB into institutional, organizational, leader, team, and employee levels of analysis (cf. Ashkanasy, 2003). Differentiating these levels provides a more detailed view of relevant predictors and outcomes within a company, alongside more distal predictors (e.g., institutional forces) or outcomes external to everyday organizational life. Additionally, a multilevel perspective allows us to illustrate how different organizational stakeholders (e.g., policy makers, leaders, and coworkers) can influence EGB.

Figure 1 organizes variables into different hierarchical levels of analysis. Contextual factors include variables at the institutional, organizational, leader, and team levels. Contextual factors at the institutional level include factors present in the broader environment within which the organization exists, such as regulatory (e.g., government), normative (e.g., competitors), and cultural-cognitive (i.e., social) pressure, per institution theory (Scott, 1995). At the organizational level are internal and formalized factors that influence employees, such as policies, incentives, and human resource practices. At the leader level are factors that relate to the influence of a senior figure over a subordinate. At the team level are factors that relate to groups of employees, such as collective self-efficacy and group goal setting. In sum, factors at these levels lie outside of an actor's control, and constitute the context. Personal factors, motivational states, and EGBs exist at the employee level. This level can be thought of as comprising between-person (i.e., factors that are relatively stable and vary between individuals, such as environmental attitude) and within-person (i.e., less stable factors that can vary within an individual, such as motivational states and affect) sublevels.

Method

To conduct our review, we collated literature that discusses EGB using an iterative multistage approach. First, we searched the reference list of previous reviews (Bamberg & Möser, 2007;

Etzion, 2007; Lo et al., 2012; Ones & Dilchert, 2012b; Starik & Rands, 1995; Steg & Vlek, 2009). From this step, we identified journals that publish studies in this field and performed searches with “environmental,” “proenvironmental,” “green,” “sustainable,” “ecological,” and “conservation” as keywords for behavior, and “environmental,” “corporate,” and “organizational” as keywords for sustainability. Next, we conducted three waves of searching reference lists for new articles; collecting the articles, and identifying additional articles in the reference lists. In order to find recent research, we next conducted database searches using the same keywords. The databases were EBSCOhost, ProQuest, PsycINFO, and Web of Science. We then checked our sample for authors with two or more articles represented, and searched their respective bibliographies for additional publications. In total, this resulted in the identification of 486 potentially relevant publications.

In the next step, we excluded articles using three criteria. First, we excluded publications that were not on the topic of environmental sustainability (i.e., those that looked at other components of broader sustainability, such as economic sustainability). Second, we removed studies that did not discuss individual-level green behavior. Third, we omitted articles that were not about behavior in a work context. This resulted in a final sample of 69 publications. Table 1 shows the number of articles from each publication included in the final review.

From the final set of articles, we extracted data pertaining to sample and sample size, level of analysis (institutional, organizational, leader, team, employee), study type (cross-sectional, diary, experimental, quasi-experimental, longitudinal), measurement (self-report, observed, objective), the theories used, and the type of behavior measured (e.g., recycling, energy conservation). We also identified the antecedents, moderators, mediators, and outcomes of the behavior, and results reported by the authors. The final sample comprised 54 quantitative and 15 qualitative studies. For a list of all studies used in this review, including summaries of the studies, please see online supplementary material at espace.library.uq.edu.au/view/UQ:351473.

Employee Green Behavior

We used a taxonomy of EGB to organize employee-level behaviors into collectively exhaustive categories (i.e., required vs. voluntary). We classified behaviors that fell within the boundaries of an employee’s core job tasks (e.g., purchasing water-saving devices for farmers), or that were explicitly required by their employer (e.g., participating in environmental management practices) as required EGB. Accordingly, we classified behaviors that fell outside of an employee’s core job tasks (e.g., citizenship behavior for the environment) or that required initiative (e.g., “I took initiative to act in environmentally friendly ways at work”) as voluntary EGB. In the end, we identified 24 studies that measured required behaviors and 47 that measured voluntary behaviors (five studies measured both).

Categorization

In order to compare the studies and also provide an overall perspective on them, we created categories (with subcategories) of factors based on the findings reported (and informed by the theoretical frameworks describes earlier) for the purpose of organizing the antecedents, moderators, mediators, and outcomes. In the following section, we describe these categories.

At the *institutional level*, we created three categories that refer to the external pressures from regulatory (e.g., laws and regulations), normative (e.g., industrial standards, market demand), and cognitive-cultural sources (e.g., community expectations). At the *organizational level*, we created four categories that include attitudes (with subcategories for attitudes toward business, such as strategy; and attitudes toward the environment, such as the importance of environmental sustainability), policy, activities (with subcategories for incentives, such as rewards; resources,

Table 1. Publications Represented in the Final Sample.

Publication	Number of articles
<i>Academy of Management Journal</i>	3
<i>American Journal of Community Psychology</i>	1
<i>Applied Energy</i>	1
<i>Applied Psychology: An International Review</i>	1
<i>Architectural Science Review</i>	1
<i>Automation in Construction</i>	1
<i>Building Research and Information</i>	1
<i>Business Strategy and the Environment</i>	8
<i>Construction Management and Economics</i>	1
<i>Ecological Economics</i>	1
<i>Energy Policy</i>	2
<i>Environment and Behavior</i>	3
<i>Going Green: The Psychology of Sustainability in the Workplace</i>	2
<i>Group & Organization Management</i>	1
<i>International Journal of Human Resource Management</i>	2
<i>Journal of Applied Behavior Analysis</i>	3
<i>Journal of Applied Psychology</i>	1
<i>Journal of Applied Social Psychology</i>	1
<i>Journal of Business Ethics</i>	7
<i>Journal of Cleaner Production</i>	3
<i>Journal of Economic Psychology</i>	1
<i>Journal of Environmental Psychology</i>	9
<i>Journal of Experimental Social Psychology</i>	1
<i>Journal of Management</i>	1
<i>Journal of Organizational Behavior</i>	2
<i>Journal of Supply Chain Management</i>	1
<i>Landscape and Urban Planning</i>	1
<i>Local Environment: The International Journal of Justice and Sustainability</i>	1
<i>Perceptual and Motor Skills</i>	1
<i>PLOS One</i>	1
<i>Resources, Conservation and Recycling</i>	1
<i>Social Indicators Research</i>	1
<i>Tourism Management</i>	1
<i>Transportation Research Part A: Policy and Practice</i>	1
<i>Waste Management & Research</i>	2

such as facilities; and organizational-level behavior, such as complying with regulations), and norms.

At the *leader level*, we created two categories, one for leader activities (with subcategories for support behavior, such as encouraging employees; giving feedback, such as environmental performance; and own EGB) and one for leadership style (e.g., environmental transformational leadership). At the *team level*, we created three categories that refer to group attitudes (e.g., perceived colleague support), behavior (e.g., goal setting), and norms (e.g., green group climate).

Finally, at the *employee level* we organized between- and within-person variables into eight categories. The between-person categories refer to attitudes toward the environment (e.g.,

environmental concern), behavior (e.g., perceived behavioral control, habits, private green behavior), norms (e.g., personal), motivation (e.g., intrinsic), job factors (e.g., task control), and personality (e.g., conscientiousness). The within-person categories refer to positive affect and behavioral intentions.

Results

In this section, we describe the factors that contribute to or are a consequence of required and voluntary EGB at the category level (see online supplementary material). Specifically, we discuss the categories of variables at the institutional, organizational, leader, and team levels (contextual factors in Figure 1) and employee level (personal factors in Figure 1) that antecede, moderate, mediate, and are outcomes of required and voluntary EGB.

Institutional Level

We identified six studies that included contextual variables at the institutional level. The research demonstrates that such factors are important for both required and voluntary EGB. For example, Marshall, Cordano, and Silverman (2005) described how the presence of regulatory, normative, and cognitive-cultural pressures are forcing winemakers to implement sustainable practices (i.e., required EGBs) into their core business. The anticipation of how these pressures might change and influence future activity is driving more voluntary measures taken in the manufacturing (Michael, Echols, & Bukowski, 2010) and print industries (Masurel, 2007).

Only one study measured an institutional-level outcome of EGB: Del Brio, Fernandez, and Junquera (2007) reported a significant positive relationship between employee engagement in required behaviors and factories' competitive advantage.

Organizational Level

Context factors conceptualized at the organizational level have to date received a greater share of research attention than variables at other levels above the employee. We identified 31 studies measuring context variables at this level including subcategories of attitude, activities, policies, and norms as contributors to EGB, and cost savings, environmental performance, and energy use output categories. Organizational-level attitudes toward the environment are important for both types of EGB. For example, Cantor, Morrow, and Montabon (2012) report a significant positive relationship between perceived organizational support for the environment and participation in environmental management (i.e., required EGB) as well as promoting initiatives and innovative environmental behaviors (i.e., voluntary EGB). Interestingly, Zhang, Wang, and Zhou (2013) found that an organization's environmental attitude negatively moderates the influence of personal environmental norms on voluntary EGB such that, when attitude is low, the impact of personal norms on conserving is weaker.

Attitudes toward business-related issues were also important for both types of EGB. Cost savings and improving work conditions for staff are reported to be important for required (Marshall et al., 2005) and voluntary (Masurel, 2007) EGB. Policies for environmental sustainability are also shown to be similarly important for required and voluntary EGB (Ramus & Steger, 2000). Norton et al. (2014) report however that the effect of policy on required and voluntary EGB is fully mediated by organizational and team norms, respectively. Finally, the important contributions of incentives (e.g., Graves et al., 2013), resources (e.g., Cantor et al., 2012), and organizational-level behavior (e.g., modifying processes; Cordano & Frieze, 2000) for required and voluntary EGBs are all present in the literature. Graves et al. (2013) also found that financial and nonfinancial incentives mediate relationships between environmental transformational leadership and both types of EGB.

We found evidence of the role social norms at the organizational level play for required EGB only. Research demonstrates significant positive relationships with required EGB among Dutch workers (Lo, van Breukelen, Peters, & Kok, 2013; Siero, Boon, Kok, & Siero, 1989). Similarly, Norton et al. (2014) reported that employee perceptions of an organization's injunctive norms were related to required EGB using a sample of office workers.

Several studies investigated organizational-level outcomes of EGB. Organizational environmental performance was found to change as a result of required (Y. Chen, Tang, Jin, Li, & Paillé, 2014) and voluntary (Paillé, Chen, Boiral, & Jin, 2014) EGB in Chinese manufacturing firms; and voluntary EGB in Canadian manufacturing firms (Boiral, Talbot, & Paillé, 2013). Several studies demonstrate the effect of required EGBs on cost savings. For example, Z. Chen, Li, and Wong (2002) and Tam and Tam (2008) found that large cost savings are directly linked with improved work practices in the construction industry. However, we found evidence of a relationship between reductions in energy consumption for voluntary EGB only. Carrico and Riemer (2011) demonstrated that education and feedback interventions result in a significant decrease in objective energy consumption. In another study, Van Houten, Nau, and Merrigan (1981) reported that, by increasing the time required to travel between floors, elevator-related energy use reduces by as much as one third. Moreover, longitudinal assessments demonstrate that employees continue to use alternative means even as the delay is gradually removed.

Leader Level

Contextual factors researched at the leader level included subcategories of leadership style, activities (i.e., supervisory behavior), environmental attitudes, and EGB (i.e., leader's own behavior) categories. We were unable to find any leader-level outcomes referred to in the literature. Recent research, however, does demonstrate that leadership style is relevant for both types of EGB. For example, Graves et al. (2013) demonstrated a positive direct effect of leadership style on subordinates' required and voluntary EGB. These researchers also found that the effect of external motivation is greater when leaders demonstrated higher levels of environmental transformational leadership. Robertson and Barling (2013) reported that leaders' environmental transformational leadership style also has a positive indirect effect on employees' voluntary EGB via the leader's own EGB and employees' harmonious environmental passion.

Leader activities are important context factors for both types of EGB. For example, Ramus and Steger (2000) reported on a range of supervisor support behaviors and their effects on voluntary EGB. These authors demonstrated that behaviors that support innovation, rewards and recognition, and the management of goals and responsibility (both in general and specific to environmental sustainability) had significant influences on the willingness to promote eco-initiatives. Other support behaviors, namely competence building and communication, were only effective when they focused on environmental sustainability. Daamen, Staats, Wilke, and Engelen (2001) found that garage managers providing feedback on environmental performance to employees have a positive effect on EGB after 3 months. Interestingly, Paillé et al. (2013) reported a significant but negative relationship between general (i.e., not related to EGB) supervisor support and voluntary EGB.

We were only able to find support for an effect of a leader's own attitudes toward the natural environment on subordinates' required EGB. Marshall et al. (2005) reported that the attitudes of leaders within wineries toward land stewardship are acknowledged as a key determinant of whether environmental practices (e.g., barrel recycling) are introduced.

The research we found demonstrates that the extent to which leaders themselves participate in EGB is important for subordinate's voluntary EGB. In this regard, Robertson and Barling (2013) reported that leaders' environmental behavior have a direct and positive influence on subordinates' EGB, as well as a positive indirect effect via subordinates' environmental passion.

Team Level

Contextual factors researched at the team level included subcategories of attitudes, norms, and behavior. As was the case with the leader level, we were unable to locate outcome variables measured at this level within the literature. Perceived colleague support was nonetheless found to have a positive indirect effect on eco-helping behavior, mediated by job satisfaction, commitment to colleagues, and intentions to help (Paillé et al., 2015). Social norms, which includes group-level climate, are reported to have positive influence on members' required (Siero et al., 1989) and voluntary (Kim et al., 2014) EGB. In all of these studies, norms were also found to mediate other relationships.

Team-level behavior and beliefs are important contextual factors for EGB. On the one hand, group goal setting has been shown to have positive outcomes for required EGB on construction sites (Lingard, Gilbert, & Graham, 2001). On the other hand, Carrico and Reimer (2011) report that collective beliefs about the group's ability to perform and action and achieve a desired outcome have a positive effect on members' voluntary EGB.

Employee Level

We found that most of the variables measured within the literature were at the employee level and constitute the person factors illustrated in Figure 1. This included subcategories of environmental attitudes, behavior, job factors, norms, motivation, affect, and intentions. In all, 21 of the 41 studies we identified at this level measured employees' environmental attitudes. In this regard, the literature demonstrates a typically positive effect of environmental attitudes on EGB. Nonetheless, using a sample of supervisors, Andersson, Shivarajan, and Blau (2005) reported no effect of personal environmental beliefs on voluntary EGB.

Behavioral beliefs and habits are also important for both types of EGB. As an example of several studies on behavioral control, Greaves, Zibarras, and Stride (2013) reported a positive effect of perceived behavioral control on required and voluntary EGB. Marans and Lee (1993) also provided an example of how habits, in this case recycling behavior at home, have a positive influence on voluntary recycling at work.

Personal norms have also been researched with regard to EGB. For example, Flannery and May (2000) demonstrated a positive relationship between subjective norms and required EGB. Similarly, Scherbaum, Popovich, and Finlinson (2008) found a positive effect of personal norms on voluntary EGB. We found only one study (Zhang, Wang, & Zhou, 2014) that reported no effect of personal norms on EGB.

Several studies demonstrate a positive effect of employee motivation on EGB. For example, using a broad conceptualization that included required and voluntary behavior, Graves et al. (2013) found that external (i.e., controlled) motivation, specifically beliefs around rewards and payment, encourages EGB. These authors also reported a positive influence of autonomous motivation.

We also found that job factors appear to be important for both types of EGB. For example, Siero et al. (1989) demonstrated that providing employees with more autonomy over task assignments has a positive effect on the energy-saving driving behavior of Dutch postal workers. With regard to employees' work-related attitudes, affective commitment to the organization (Lamm, Tosti-Kharas, & Williams, 2013) and colleagues (Paillé et al., 2015) were both shown to mediate effects of perceived support on citizenship-type behaviors toward the environment. Paillé and colleagues also report a negative effect of job satisfaction on eco-helping behavior (i.e., helping coworkers to be environmentally friendly).

Affect has only recently begun to attract research attention. Bissing-Olson et al. (2013) reported that positive affect has an important role to play for EGB at the within-person level.

Specifically, these authors found that low-arousal positive affect has a positive effect on required but not voluntary EGB and that high-arousal positive affect has a positive effect on voluntary EGB only when environmental attitude is less positive.

An intention to engage in future EGB has also been reported as an outcome of EGB. Osbaldiston and Sheldon (2003) reported that required EGB stemming from internalized motivation results in intentions to meet environmental goals in the future. Similarly, Murtagh et al. (2013) reported that voluntary EGB has a positive effect on intentions to monitor future energy consumption.

We were only able to find evidence of a relationship between behavioral intentions and voluntary EGB. For example, after asking some participants to develop intentions by planning when, where, and how they could recycle at work, Holland, Aarts, and Langendam (2006) reported a difference in recycling behavior. Specifically, participants that developed intentions recycled significantly more materials than those that did not. Similarly, Paillé et al. (2015) demonstrated a direct positive effect of intentions to help coworkers on eco-helping behavior.

The literature only provides evidence of intrinsic satisfaction as an outcome of voluntary EGB. In this respect, Lee and De Young (1994) compared two models. In the first, intrinsic satisfaction is seen to predict recycling behavior; in the other, recycling behavior is considered to predict intrinsic satisfaction. Although these authors concluded that intrinsic satisfaction is an outcome of, rather than a predictor of, voluntary EGB, they did not provide statistics to demonstrate the significance of the relationships they found.

Discussion

In this review, we sought not only to summarize the state of EGB research but also to integrate the research systematically, based on theoretical considerations, and to provide an agenda to direct the next phase of research. To accomplish this, we distinguished between person and contextual influences on EGB to present a theoretical model (Figure 1) based on an existing model of job performance (Blumberg & Pringle, 1982) and Lewin's (1951) person–environment interaction perspective on behavior. We categorized the behaviors studied as either being required by the organization or representing voluntary efforts on behalf of employees, building on the important distinction between task and contextual performance (Borman & Motowidlo, 1993). In addition, we ordered factors with regard to their respective conceptual levels to provide a multilevel perspective (Kozlowski & Klein, 2000). Importantly, this perspective includes both top-down and emergent (i.e., within-person) cross-level relationships (Kozlowski, Chao, Grand, Braun, & Kuljanin, 2013). Finally, in order to create a similar overview to an existing perspective on corporate social responsibility (Aguinis & Glavas, 2012), we distinguished between three classes of variable: (1) factors that antecede EGB, (2) factors that moderate and mediate relationships between antecedents and EGB, and (3) factors that are outcomes of EGB.

What We Know and What We Don't (Yet)

Based on the literature we reviewed, we found evidence in support of our distinction between required and voluntary EGBs, and also for our contention that these behaviors are analogous to task and citizenship performance, respectively. For example, conscientiousness and organizational commitment are established predictors of organizational citizenship behavior (LePine, Erez, & Johnson, 2002). Consistent with this evidence, we found in our review evidence for a relationship between these factors and voluntary EGB only. Similarly, the relationship between participative goal setting and required EGB that we identified is consistent with Mento, Steel, and Karren's (1987) meta-analytic identification of a relationship between participative goal setting and general task performance.

Thus, there are indications that required and voluntary EGB constitute types of job performance that align with task and citizenship performance, respectively. Nonetheless, we also acknowledge that additional empirical evidence needs to be gathered before we can be sure of the accuracy of this summation. We therefore encourage researchers to explore the relationships between these general and green types of workplace behaviors. In order to achieve this, researchers should adopt the concepts of required and voluntary EGB. Alternatively, if the research is conducted in the field with specific behaviors (e.g., recycling), researchers should report whether or not the behavior is required by the organization or not.

In general, the most significant shortcomings of the literature appears to be a lack of research into the mechanisms through which various personal and contextual antecedents influence EGB, the conditions under which the antecedents are particularly influential, and how EGB influences important outcomes for employees, coworkers and teams, leaders, and the broader organization (Figure 1). Additionally, there is a lack of multilevel research, particularly research that investigates the cross-level processes through which high-level antecedents influence employee-level behavior. Addressing these deficiencies would seem to be vital for this field going forward. To this end, we call for research that investigates factors that moderate and mediate established relationships between antecedents and EGB. Furthermore, we call for researchers to include outcomes of EGB in their studies. In their review of corporate social responsibility, of which environmental sustainability constitutes one of three pillars, Aguinis and Glavas (2012) present outcomes across institutional, organizational, and individual levels that are equally applicable to EGBs.

Our review illustrates the foci of research to date and highlights that EGB research has focused mainly on antecedents at the employee level of analysis (i.e., personal factors). Accordingly, our findings also point to areas where researchers are yet to make significant inroads. In particular, research toward contextual factors at the institutional, organizational, leader, and team levels of analyses that moderate, mediate, and are outcomes of EGB is lacking. Table 2 presents the proposed future research agenda, including additional areas of research and associated research questions. Below, we summarize the strengths and weaknesses of the research at each of these levels.

Factors at the Institutional Level. At the institutional level, we know that organizations are under pressure from several sources to engage with environmental sustainability (e.g., Masurel, 2007). The effects of such pressures are manifest at the organizational level in the form of attitudes toward business and the environment. These attitudes are realized in the form of formal environmental policies and activities such as providing resources, incentives for EGB, and organizational-level behavior. However, there has been little work to describe the processes through which factors at this level trickle down to influence EGB. The fact that this level receives scant research attention is perhaps attributable to the conceptual distance between it and employee behavior. As a result, our review features a very broad conceptualization of factors at this level. At the same time, however, since regulatory, normative, and cognitive-cultural pressures promote the issue of environmental sustainability to senior executives (Accenture, 2013), it would seem to be an imperative to understand how decisions and activities at higher organizational levels translate to employee behavior, potentially through the behavior of senior leaders.

A practical avenue for future research at this level might be to investigate how organizations differ in their interpretations of environmental sustainability (e.g., as something to comply with, as a source of innovation, etc.; Norton et al., 2015) and how these interpretations influence the types of EGB that emerge, as well as the subsequent impact on key business metrics. More generally, while we propose a conceptual explanation for how institutional-level factors influence behavior, exactly how this process occurs has not been empirically tested. Answering questions regarding trickle down effects requires that researchers adopt a multilevel perspective and study cross-level relationships.

Table 2. Agenda for Future Research.

Research domain	Illustrative research questions
Return on investment	<ul style="list-style-type: none"> • What are the specific outcomes of EGB at each level of analysis? • What types of EGB have the greatest impact (e.g., on a company's environmental performance)?
Interventions	<ul style="list-style-type: none"> • What are the reciprocal effects of the outcomes of EGB? • What makes non-green people do green things? • Does addressing the context rather than the person represent the path of least resistance? • Is it more effective to target the employee, team, leader, or organization level?
Organizational culture	<ul style="list-style-type: none"> • How can EGBs be imbedded into an organization's culture? • Are different types of organizations more effective than others at imbedding EGBs into their culture? • Do employees internalize organizational attitudes toward the environment, or simply follow instructions? • Do group attitudes and values toward environmental sustainability have implications for individuals' identification with the group?
Between-person variability	<ul style="list-style-type: none"> • How do institutional pressures trickle down to drive EGB? • What personality factors (e.g., conscientiousness) are relevant for EGB? • What is the relationship between EGB and job satisfaction? • How do job factors (e.g., task control, constraints) influence EGB?
Within-person variability	<ul style="list-style-type: none"> • To what extent does EGB vary within-person from day to day? • What are the personal, contextual, and motivational factors that drive within-person variability? • Do the factor structures for between- and within-person EGB performance differ?
Motivational states	<ul style="list-style-type: none"> • Do different motivational states determine what type of EGB an employee is likely to engage in? • What are the factors that might contribute to different motivational states? • Are certain leadership styles better or worse for engendering autonomous or controlled motivation for EGB?

Note. EGB = employee green behavior.

Factors at the Organizational Level. The organizational level represents an interesting paradox. Our review seems to lead us to the apparently tautological conclusion that green organizations have green employees. As expected, research demonstrates an effect of EGB on organizational environmental performance. However, despite a considerable research effort to identify key factors and establish the efficacy of interventions at this level, our understanding of the mechanisms through which organizational-level factors influence employee behaviors is still developing. For example, positive organizational values toward the environment, and the realization of these values into cultural artifacts such as policies and practices, are consistently shown to be important antecedents for EGB. It is unclear, however, whether employees internalize organizational values, which would lead to a more autonomous motivation, or simply follow company expectations, which would lead to more controlled motivation. This leads to further questions. For example, how can organizations imbed EGBs into their culture? Similarly, are certain types of

organizations, such as hybrid organizations (Haigh & Hoffman, 2014), more effective than others at imbedding EGBs? Answering these questions will have implications for the design and implementation of EGB interventions.

Factors at the Leader Level. Factors at this level are important for creating a connection between the organization and employees. Specifically, leaders can provide support to employees so that they work toward achieving their own goals, as well as the environmental goals of the organization (Ramus & Steger, 2000). Leaders' behavior also appears to set an example for employees to follow (Robertson & Barling, 2013), although this might be mediated by factors at other levels (Kim et al., 2014).

One area that seems *not* to be well understood is the effect of different leadership styles on required and voluntary EGB. Among the studies in our review, only environmental transformational leadership is measured. It is feasible that different styles of leadership might vary in their effect on different types of EGB, as is shown in other areas (Kuenzi & Schminke, 2009). According to Bass (1985, 1999), transactional leaders motivate employees to fulfill expectations regarding job performance (i.e., required behaviors), while transformational leaders motivate followers to exceed expectations (e.g., citizenship behavior). Thus, transactional leaders may be effective for motivating employees to perform required EGB, while transformational leaders might be more effective at motivating employees to engage in voluntary EGB. Similarly, another practical avenue of research might be to investigate the influence of different leadership attributes, such as charisma (Shamir, House, & Arthur, 1994), on organizational change surrounding environmental sustainability. We also note that there appears to be a lack of attention toward processes in the leadership literature; specifically how dynamic multilevel relationships might contribute to outcomes by facilitating or inhibiting leadership (Dinh et al., 2014). Clearly, greater understanding of green leadership will have implications for the successful implementation of interventions.

Factors at the Team Level. Team-level factors such as activities, behavioral beliefs, and norms are also effective for encouraging EGB. In particular, Carrico and Riemer (2011) demonstrated that belief in the team's ability to achieve goals is important for EGB, while Norton et al. (2014) showed that positive environmental norms play a role. What is yet to be determined, however, is the interdependence between individual members and the group as a whole, particularly with reference to environmental attitudes and values. For example, researchers could investigate how environmental values become shared throughout a group, and the implications of environmental group norms on individual members' identification with the group.

In this regard, Kim et al. (2014) describe a social process whereby the shared values of the group influence individual EGB. Specifically, these researchers found that the extent to which environmental issues are discussed, knowledge is shared, and behavior is encouraged within the group has a subsequent effect on member EGB. Further to this point, the question arises as to whether enacting a green group identity by participating in EGB and achieving green goals will have consequences for employee satisfaction. These current limitations in our understanding of EGB identify areas where researchers can make valuable contributions.

Factors at the Employee Level. Our review reveals that most of what we know about EGB comes from research at the employee level. Largely because of a predominance of studies using the theory of planned behavior (Ajzen, 1991), it seems to be taken for granted that participation in EGB is at least in part attitude-driven. As such, employee attitudes toward the environment, other behavior and behavioral beliefs, intrinsic motivation, and norms are important influences on behavior. Within-person factors such as positive affect may also be important (Bissing-Olson et al., 2013). Interestingly, we were only able to find evidence for personality factors and behavioral

intentions effects toward voluntary EGB in the current literature. This may suggest that the extents to which employees engage in required EGB is more dependent on perceptions of the organization and activity within it, or it may reflect an assumption that employees comply strictly with organizational requirements.

What is perhaps lacking here is a detailed understanding of how employees might come to adopt positive environmental attitudes at work if they do not already possess them. For example, by incorporating the findings on positive affect and EGB from Bissing-Olson et al. (2013) with affective events theory (Weiss & Cropanzano, 1996), we conclude that EGBs actually represent positive behavioral responses to affective events, such as the actions of managers. Such responses can over time influence workplace attitudes (Weiss & Beal, 2005) and perhaps, especially in the case of EGBs, environmental attitudes. As we have alluded to in earlier paragraphs, the mechanisms through which organizational, leader, and group norms influence individual employees are yet to be empirically tested. Understanding how to encourage EGB among non-green employees (i.e., those who do not possess strong proenvironmental beliefs and attitudes) represents a key challenge for practitioners.

We also note however that the evidence regarding behavioral beliefs is far from conclusive, which is surprising, especially considering the considerable amount of research that has investigated it. Other factors that are yet to receive sufficient research attention to warrant conclusive statements include job factors, internal motivations, knowledge of environmental issues and behaviors, and awareness of environmental impacts. Understanding how and why these factors are or are not instrumental in influencing EGB is clearly important, as they are precisely the factors that might be susceptible to interventions. Alternatively, it may be the case that interventions that address the context, and how employees perceive that context, are more effective than interventions that target the person.

One area with potential to highlight the scope for organizational research to provide value to this literature might be personality. We were surprised to find that only one study included in this review measured aspects of employees' personality (Kim et al., 2014). This is in contrast to other aspects of job performance, where personality traits have been extensively studied both for task (Judge & Ilies, 2002) and citizenship performance (Chiaburu, Oh, Berry, Li, & Gardener, 2011). It may be particularly important to determine the boundary conditions of personality traits, however. This is because research suggests a curvilinear relationship between traits such as conscientiousness and task and citizenship performance (Le et al., 2011). Thus, there may well be additional factors, such as job complexity (Le et al., 2011), that interact with personality traits to influence performance of EGBs.

Outcomes of EGB. A clear finding of our review is that there is a lack of empirical evidence to date regarding the outcomes of EGB. Such evidence is critical for practitioners and those working within organizations to facilitate EGB in the workplace. The ability to demonstrate a range of positive outcomes from EGB at the institutional (e.g., competitive advantage), organizational (e.g., cost savings), leader (e.g., leader effectiveness), team (e.g., positive social norms), and employee (e.g., intrinsic satisfaction) levels is imperative for establishing a business case to develop required EGBs and support voluntary EGBs (Ones & Dilchert, 2012b). Meta-analytic data demonstrate that environmental management practices have a positive effect on firm financial performance (Albertini, 2013). However, the extent to which EGBs contribute to this is unknown. To this end, it is clearly important that researchers include financial (e.g., cost saving) and nonfinancial (e.g., employee motivation) outcomes for the organization in particular. As demonstrated by Michael et al. (2010), anticipated financial benefits may not be sufficient to motivate senior leaders to introduce environmentally friendly practices. Similarly, it is important to identify meaningful outcomes at the employee level (e.g., employee satisfaction) to encourage actors to engage with EGBs.

The Missing Level. In the process of conducting this review, we found a surprising lack of research at the within-person level. Ashkanasy (2003) and Fisher (2008) argue in this respect that modeling temporal or within-person variation is important to understand the dynamic nature of phenomena associated with real-time behavior. Similarly, the studies included in this review demonstrate that the effect of higher-order factors, such as policies, on EGB are often moderated and/or mediated by variability in employee-level variables (e.g., Norton et al., 2014). Since individual behavior operates at the within-person level (Beal, Weiss, Barros, & MacDermid, 2005), it seems reasonable to propose therefore that the effect of between-person factors, such as attitudes, may also interact with within-person factors. Bissing-Olson et al. (2013) demonstrated such an effect by showing an interaction between environmental attitudes (between-person variability) and high-arousal positive affect (within-person variability). These findings suggest that EGBs might be more complex than we currently believe we understand, and developing a more detailed perspective at the within-person level may lead to a clearer comprehension of the effect of institutional, organizational, leader, and team factors. To progress the field, researchers clearly need to develop models that include this level of analysis and account for dynamic fluctuations in EGB. From a methodological perspective, answering this weakness requires different approaches than those predominating in the literature (i.e., replacing cross-sectional designs with experience-sampling or diary designs). Table 2 presents several research questions targeting EGB at the within-person level. In the next section, we highlight some methodological observations and suggestions to progress the literature, in particular disentangling the within- and between-person effects associated with EGB.

Methodological Observations. In reviewing this literature we noticed three methodological deficiencies. First, cross-sectional studies using self-report data make up the bulk of the research in this review. The limitations of this methodology are well documented (Podsakoff, McKenzie, & Podsakoff, 2012). Moreover, recent research suggests that the correlation between self-report and objective measures of environmental behavior is functionally small (Kormos & Gifford, 2014).

Second, while there is an encouraging trend toward longitudinal studies, which examine the impact of factors over time, there is a clear need for more of this kind of research. Longitudinal methods also provide practitioners with a greater insight into the potential efficacy of interventions, with specific regard to the longevity of effects (Unsworth et al., 2013). Finally, longitudinal research can assist with causal interpretation by investigating how behavioral processes develop over time. Moreover, identifying the reciprocal effects of outcomes, specifically how outcomes feed back into the factors and processes that antecede EGB, is vital.

Third, there is a need for more experimental intervention studies. The key advantage to this methodology is that it allows the strongest inferences regarding causality. While we did find some studies employing this method (e.g., Holland et al., 2006), they are certainly in the minority. Alternatively, quasi-experimental field studies also allow for causal inferences when methodological controls such as random assignment and manipulations are not possible (Grant & Wall, 2009). In addition, the experimental vignette methodology allows researchers to control and manipulate independent variables while presenting realistic scenarios (Aguinis & Bradley, 2014). Importantly, these designs allow for context to be operationalized and controlled, which is important when considering the context-specific nature of EGBs (Ones & Dilchert, 2012a).

To supplement these methods, and as we noted earlier, we especially call for researchers to place more emphasis in future on within-person variations in behavior, which can shed light on the factors associated with the emergence of EGB as it happens. For example, the daily diary method is an intensive longitudinal methodology, and is particularly apt for researching within-person, day-to-day variations (Ohly, Sonnentag, Niessen, & Zapf, 2010). One worthwhile area to study would be the workplace factors that facilitate or inhibit an employee's performance of EGB, while accounting for the impact of more stable factors such as organizational climate and personal environmental attitudes.

Researchers might also do well to investigate the experience of emotions as a result of engaging in EGBs using experience sampling (Larson & Csikszentmihalyi, 1983). Based on our findings, we encourage researchers to conduct multilevel research (and especially studies that look at within-person variability) and to look at a suite of factors (i.e., antecedents, moderators, mediators, outcomes) and types of EGB (i.e., investigating differences between required and voluntary EGB) using objective data to complement self-report data.

An Integrated Multilevel Perspective

In addition to the conceptual model in Figure 1, we propose that a multilevel model of organizational culture and climate is an especially useful way for researchers and practitioners to integrate the findings of this review. Such a model emphasizes factors on different levels as well as the processes that link them (Hatch, 2011). External pressures, such as regulatory, normative, and cognitive-cultural pressures, shape the assumptions that lie at the heart of an organization's culture. These assumptions guide the decisions and activities of senior organizational figures and manifest in the company's beliefs and values. In turn, beliefs and values go through a process of realization, wherein they are expressed through tangible artifacts. Artifacts include policies, practices, and language, which also form the basis for organizational climate (Schneider, Ehrhart, & Macey, 2013). In some cases, certain artifacts will take on additional meaning and become symbols of the culture, which can be interpreted to reinforce underlying assumptions. Norton et al. (2015) propose that the perception of artifacts, and the beliefs and values they are laden with, guides EGB. Specifically, the perception of policies, procedures, and practices reflect social norms of what the organization approves of and what is typically done within the company. It is at this point where contextual and personal factors interact.

An integrated multilevel framework should be of benefit for practitioners in the design and implementation of EGB interventions. Aligning environmental sustainability initiatives with existing organizational values and understanding the interconnectedness of each level will most likely be required in order to maximize the likelihood of success (Norton et al., 2015). Last but not least, practitioners should clearly define how the success of interventions should be measured with a multilevel approach. That is, to observe the outcomes of EGB at each level. This last point is critical to developing an understanding of the implications of employee behavior for an organization's pursuit of environmental sustainability.

Within this framework, it is also important to identify how normative, exchange, and motivational theories apply. The literature we reviewed here demonstrates the strong influence of social norms on EGB. A normative perspective on EGB is particularly useful as it can accommodate cross-level effects (e.g., the effect of teams on employee behavior). As we highlighted earlier, such effects are presently lacking within the literature. Social norms reflect what is accepted and done in a particular context (Cialdini et al., 1990). As such, they serve as reference points for acceptable conduct. Societal norms are present in the cognitive-cultural pressure at the institutional level. Furthermore, norms within organizations shape the activities of leaders, teams, and employees. Finally, employees also have their own personal norms. Thus, norms can constitute context (i.e., societal, organizational, group) and person factors that lead to motivational states required to perform EGB (Figure 1).

Similarly, exchange theories are also well suited to a multilevel framework as they explore the relationships between hierarchically distinct entities (e.g., between the organization and employees, between leaders and employees). Central to exchange processes is an assumption of reciprocity, whereby one party responds to a strong and positive exchange relationship with behavior that aligns with the values of the other party and is thus meaningful (Dienesch & Liden, 1986). Exchange relationships therefore represent processes through which factors at the organizational, leader, and perhaps also team levels direct employee behavior. This is particularly relevant for

the proposed model in Figure 1, which conceptualizes EGB as a product of the interaction between an employee and contextual factors at different hierarchical levels. Song, Tsui, and Law (2009) make a distinction between social and economic exchange processes. On the one hand, social exchange relationships are characterized by high levels of trust, extensive investment in the employee, long-term focus, and an emphasis on socio-emotional connections (Shore, Tetrick, Lynch, & Barksdale, 2006). On the other hand, economic exchange relationships feature low levels of trust, short-term focus, and an emphasis on economic exchanges between the employee and the organization (Blau, 1964). This distinction is analogous to the distinction of transactional and transformational leadership, which have been shown to have different relationships with meeting requirements and going above and beyond what is expected (e.g., required and voluntary behavior; Bass, 1999). We posit that different types of exchange processes may lead to different motivational states and, subsequently, different types of EGB.

Despite their utility, normative and exchange theories lack the ability to account for variation at the within-person level. Here, motivational theories such as self-determination theory (Deci & Ryan, 1985, 2000) may be appropriate, as motivation is regarded as an important within-person predictor of job performance (Dalal, Bhawe, & Fiset, 2014). Considering the distinction between required and voluntary EGB, it might be particularly appropriate to investigate whether different types of motivation can explain why employees might vary in their engagement in these two types of EGB from one day to the next, as we propose in Figure 1.

Conclusion

In this review, we proposed a theory-based conceptual model based on person–environment interaction, job performance taxonomies, and self-determination theory to structure our review of the EGB literature and subsequent research agenda. Our findings suggest that there appear to be disparities between required and voluntary EGBs with regard to the context and person factors they are associated with, which warrants a conceptual distinction between the two. In effect, we add to a growing literature that demonstrates that EGBs can, in fact, come in different shades of green. The results of our review points to a bias toward studying the antecedents of EGB, and with the notable exception of behavioral intention, there is little research that explains the mechanisms driving EGBs.

Furthermore, while research on EGBs is conducted across all organizational levels, there has been little work to describe the processes through which, for example, factors at the institutional level trickle down to influence an employee's participation in various types of EGB via organizational policies and activities. Overall, we believe EGB—and environmental sustainability in general—represents an important area for organizational research and practice into the 21st century. We encourage researchers and practitioners to make multilevel contributions grounded in organizational theories, using a detailed behavioral perspective, and investigating context and person factors.

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References

- Accenture. (2013). *UN Global Compact-Accenture CEO study on sustainability: Architects of a better world*. Retrieved from <http://www.accenture.com/microsites/ungc-ceo-study/Pages/home.aspx>

- Aguinis, H., & Bradley, K. J. (2014). Best practice recommendations for designing and implementing experimental vignette methodology studies. *Organizational Research Methods*. Advance online publication. doi:10.1177/1094428114547952
- Aguinis, H., & Glavas, A. (2012). What we know and don't know about corporate social responsibility: A review and research agenda. *Journal of Management*, 38, 932-968.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- Albertini, E. (2013). Does environmental management improve financial performance? A meta-analytic review. *Organization & Environment*, 26, 431-457.
- Andersson, L., Jackson, S. E., & Russell, S. R. (2013). Greening organizational behavior: An introduction to the special issue. *Journal of Organizational Behavior*, 34, 151-155.
- Andersson, L., Shivarajan, S., & Blau, G. (2005). Enacting ecological sustainability in the MNC: A test of an adapted value-belief-norm framework. *Journal of Business Ethics*, 59, 295-305.
- Ashkanasy, N. M. (2003). Emotions in organizations: A multilevel perspective. In F. Dansereau & F. J. Yammarino (Eds.), *Research in multi-level issues* (Vol. 2, pp. 9-54). Oxford, England: Elsevier Science.
- Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behavior. *Journal of Environmental Psychology*, 27, 14-25.
- Bass, B. M. (1985). *Leadership performance beyond expectations*. New York, NY: Academic Press.
- Bass, B. M. (1999). Two decades of research and development in transformational leadership. *European Journal of Work and Organizational Psychology*, 8, 9-32.
- Beal, D. J., Weiss, H. M., Barros, E., & MacDermid, S. M. (2005). An episodic process model of affective influences on performance. *Journal of Applied Psychology*, 90, 1054-1068.
- Bissing-Olson, M. J., Fielding, K. S., & Iyer, A. (2015). Diary methods and workplace pro-environmental behaviors. In J. L. Robertson & J. Barling (Eds.), *The psychology of green organizations* (pp. 95-116). New York, NY: Oxford University Press.
- Bissing-Olson, M., Iyer, A., Fielding, S., & Zacher, H. (2013). Relationships between daily affect and pro-environmental behavior at work: The moderating role of pro-environmental attitude. *Journal of Organizational Behavior*, 34, 156-175.
- Bissing-Olson, M. J., Zacher, H., Fielding, K. S., & Iyer, A. (2012). An intraindividual perspective on pro-environmental behavior at work. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, 5, 500-502.
- Blau, P. (1964). *Exchange and power in social life*. New York, NY: John Wiley.
- Blumberg, M., & Pringle, C. D. (1982). The missing opportunity in organizational research: Some implications for a theory of work performance. *Academy of Management Review*, 7, 560-569.
- Boiral, O., Talbot, D., & Paillé, P. (2013). Leading by example: A model of organizational citizenship behavior for the environment. *Business Strategy and the Environment*. Advance online publication. doi:10.1002/bse.1835
- Borman, W. C., & Motowidlo, S. J. (1993). Expanding the criterion domain to include elements of contextual performance. In N. Schmitt & W. C. Borman (Eds.), *Personnel selection in organizations* (pp. 71-98). San Francisco, CA: Jossey-Bass.
- Cantor, D. E., Morrow, P. C., & Montabon, F. (2012). Engagement in environmental behaviors among supply chain management employees: An organizational support theoretical perspective. *Journal of Supply Chain Management*, 48, 33-51.
- Carrico, A. R., & Riemer, M. (2011). Motivating energy conservation in the workplace: An evaluation of the use of group-level feedback and peer education. *Journal of Environmental Psychology*, 31, 1-13.
- Chen, Y., Tang, G., Jin, J., Li, J., & Paillé, P. (2014). Linking market orientation and environmental performance: The influence of environmental strategy, employee's environmental involvement, and environmental product quality. *Journal of Business Ethics*. Advance online publication. doi:10.1007/s10551-014-2059-1
- Chen, Z., Li, H., & Wong, C. T. (2002). An application of bar-code system for reducing construction wastes. *Automation in Construction*, 11, 521-533.
- Chiaburu, D. S., Oh, I.-S., Berry, C. M., Li, N., & Gardner, R. G. (2011). The five-factor model of personality traits and organizational citizenship behaviors: A meta-analysis. *Journal of Applied Psychology*, 96, 1140-1166.

- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58, 1015-1026.
- Cordano, M., & Frieze, I. H. (2000). Pollution reduction preference of U.S. environmental managers: Applying Ajzen's theory of planned behavior. *Academy of Management Journal*, 43, 627-641.
- Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31, 874-900.
- Daamen, D. D. L., Staats, H., Wilke, H. A. M., & Engelen, M. (2001). Improving environmental behavior in companies: The effectiveness of tailored versus nontailored interventions. *Environment and Behavior*, 33, 229-248.
- Dalal, R., Bhawe, D., & Fiset, J. (2014). Within-person variability and job performance: A theoretical review and research agenda. *Journal of Management*, 40, 1396-1436.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.
- Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. *Journal of Personality and Social Psychology*, 53, 1024-1037.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227-268.
- Del Brio, J. A., Fernandez, E., & Junquera, B. (2007). Management and employee involvement in achieving an environmental action-based competitive advantage: An empirical study. *International Journal of Human Resource Management*, 18, 491-522.
- Dienesch, R. M., & Liden, R. C. (1986). Leader member exchange model of leadership: A critique and further development. *Academy of Management Review*, 11, 618-634.
- Dinh, J. E., Lord, R. G., Gardner, W. L., Meuser, J. D., Liden, R. C., & Hu, J. (2014). Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives. *Leadership Quarterly*, 25, 36-62.
- Emerson, R. M. (1976). Social exchange theory. *Annual Review of Sociology*, 2, 335-362.
- Etzion, D. (2007). Research on organizations and the natural environment, 1992-present: A review. *Journal of Management*, 33, 637-664.
- Fisher, C. D. (2008). What if we took within-person performance variability seriously? *Industrial and Organizational Psychology: Perspectives on Science and Practice*, 1, 185-189.
- Flannery, B. L., & May, D. R. (2000). Environmental ethical decision making in the U.S. metal-finishing industry. *Academy of Management Journal*, 43, 642-662.
- Gagné, M., & Deci, E. L. (2005) Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26, 331-362.
- Grant, A. M., & Wall, T. D. (2009). The neglected science and art of quasi-experimentation: Why-to, when-to, and how-to advice for organizational researchers. *Organizational Research Methods*, 12, 653-686.
- Graves, L. M., Sarkis, J., & Zhu, Q. (2013). How transformational leadership and employee motivation combine to predict employee proenvironmental behaviors in China. *Journal of Environmental Psychology*, 35, 81-91.
- Greaves, M., Zibarras, L. D., & Stride, C. (2013). Using the theory of planned behavior to explore environmental behavioral intentions in the workplace. *Journal of Environmental Psychology*, 34, 109-120.
- Hatch, M. J. (2011). Material and meaning in the dynamics of organizational culture and identity with implications for the leadership of organizational change. In N. M. Ashkanasy, C. P. M. Wilderom, & M. F. Peterson (Eds.), *Handbook of organizational culture and climate* (2nd ed., pp. 341-358). Thousand Oaks, CA: Sage.
- Haigh, N., & Hoffman, A. J. (2014). The new heretics: Hybrid organizations and the challenges they present to corporate sustainability. *Organization & Environment*, 27, 223-241.
- Hofmann, D. A., Griffin, M., & Gavin, M. (2000). The application of hierarchical linear modeling to organizational research. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations* (pp. 467-511). San Francisco, CA: Jossey-Bass.
- Holland, R. W., Aarts, H., & Langendam, D. (2006). Breaking and creating habits on the working floor: A field-experiment on the power of implementation intentions. *Journal of Experimental Social Psychology*, 42, 776-783.

- Judge, T. A., & Ilies, R. (2002). Relationship of personality to performance motivation: A meta-analytic review. *Journal of Applied Psychology, 87*, 979-807.
- Kim, A., Kim, Y., Han, K., Jackson, S. E., & Ployhart, R. E. (2014). Multilevel influences on voluntary workplace green behavior: Individual differences, leader behavior, and coworker advocacy. *Journal of Management*. Advance online publication. doi:10.1177/0149206314547386
- Kormos, C., & Gifford, R. (2014). The validity of self-report measures of proenvironmental behavior: A meta-analytic review. *Journal of Environmental Psychology, 40*, 359-371.
- Kozlowski, S. W. J., Chao, G. T., Grand, J. A., Braun, M. T., & Kuljanin, G. (2013). Advancing multi-level research design: Capturing the dynamics of emergence. *Organizational Research Methods, 16*, 581-615.
- Kozlowski, S. W. J., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research and methods in organizations* (pp. 3-90). San Francisco, CA: Jossey-Bass.
- Kuenzi, M., & Schminke, M. (2009). Assembling fragments into a lens: A review, critique, and proposed research agenda for the organizational work climate literature. *Journal of Management, 35*, 634-717.
- Lamm, E., Tosti-Kharas, J., & Williams, E. G. (2013). Read this article, but don't print it: Organizational citizenship behavior toward the environment. *Group & Organization Management, 38*, 163-197.
- Larson, R., & Csikszentmihalyi, M. (1983). The experience sampling method. In H. T. Reis (Ed.), *Naturalistic approaches to studying social interaction: New directions for methodology of social and behavioral science* (Vol. 15, pp. 41-56). San Francisco, CA: Jossey-Bass.
- Le, H., Oh, I.-S., Robbins, S. B., Ilies, R., Holland, E., & Westrick, P. (2011). Too much of a good thing: Curvilinear relationships between personality traits and job performance. *Journal of Applied Psychology, 96*, 113-133.
- Lee, Y.-J., & De Young, R. (1994). Intrinsic satisfaction derived from office recycling behavior: A case study in Taiwan. *Social Indicators Research, 31*, 63-76.
- LePine, J. A., Erez, A., & Johnson, D. E. (2002). The nature and dimensionality of organizational citizenship behavior: A critical review and meta-analysis. *Journal of Applied Psychology, 87*, 52-65.
- Lewin, K. (1951). *Field theory in social science*. New York, NY: McGraw-Hill.
- Lingard, H., Gilbert, G., & Graham, P. (2001). Improving solid waste reduction and recycling performance using goal setting and feedback. *Construction Management and Economics, 19*, 809-817.
- Lo, S. H., Peters, G.-J. Y., & Kok, G. (2012). A review of determinants of and interventions for proenvironmental behaviors in organizations. *Journal of Applied Social Psychology, 42*, 2933-2967.
- Lo, S. H., van Breukelen, G. J. P., Peters, G.-J. Y., & Kok, G. (2013). Proenvironmental travel behavior among office workers: A qualitative study of individual and organizational determinants. *Transportation Research Part A: Policy and Practice, 56*, 11-22.
- Lülfes, R., & Hahn, R. (2014). Sustainable behavior in the business sphere: A comprehensive overview of the explanatory power of psychological models. *Organization and Environment, 27*, 43-64.
- Marans, R. W., & Lee, Y.-J. (1993). Linking recycling behavior to waste management planning: A case study of office workers in Taiwan. *Landscape and Urban Planning, 26*, 203-214.
- Marshall, R. S., Cordano, M., & Silverman, M. (2005). Exploring individual and institutional drivers of proactive environmentalism in the US wine industry. *Business Strategy and the Environment, 14*, 92-109.
- Masurel, E. (2007). Why SMEs invest in environmental measures: Sustainability evidence from small and medium-sized printing firms. *Business Strategy and the Environment, 16*, 190-201.
- Mento, A. J., Steel, R. P., & Karren, R. J. (1987). A meta-analytic study of the effects of goal setting on task performance: 1966-1984. *Organizational Behavior and Human Decision Processes, 39*, 52-83.
- Michael, J. H., Echols, A. E., & Bukowski, S. (2010). Executive perceptions of adopting an environmental certification program. *Business Strategy and the Environment, 19*, 466-478.
- Motowidlo, S. J., & Van Scotter, J. R. (1994). Evidence that task performance should be distinguished from contextual performance. *Journal of Applied Psychology, 79*, 475-480.
- Murtagh, N., Nati, M., Headley, W. R., Gatersleben, B., Gluhak, A., Imran, M. A., & Uzzell, D. (2013). Individual energy use and feedback in an office setting: A field trial. *Energy Policy, 62*, 717-728.
- Norton, T. A., Zacher, H., & Ashkanasy, N. M. (2012). On the importance of pro-environmental organizational climate for employee green behavior. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 5*, 497-500.

- Norton, T. A., Zacher, H., & Ashkanasy, N. M. (2014). Organisational sustainability policies and employee green behavior: The mediating role of work climate perceptions. *Journal of Environmental Psychology, 38*, 49-54.
- Norton, T. A., Zacher, H., & Ashkanasy, N. M. (2015). Pro-environmental organizational culture and climate. In J. L. Robertson & J. Barling (Eds.), *The psychology of green organizations* (pp. 322-348). New York, NY: Oxford University Press.
- Ohly, S., Sonnentag, S., Niessen, C., & Zapf, D. (2010). Diary studies in organizational research. *Journal of Personnel Psychology, 9*, 79-93.
- Ones, D. S., & Dilchert, S. (2012a). Employee green behaviors. In S. E. Jackson, D. S. Ones, & S. Dilchert (Eds.), *Managing human resources for environmental sustainability* (pp. 85-116). San Francisco, CA: Jossey-Bass.
- Ones, D. S., & Dilchert, S. (2012b). Environmental sustainability at work: A call to action. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 5*, 444-466.
- Organ, D. W. (1997). Organizational citizenship behavior: It's construct clean-up time. *Human Performance, 10*, 85-97.
- Osbaldiston, R., & Sheldon, K. M. (2003). Promoting internalized motivation for environmentally responsible behavior: A prospective study of environmental goals. *Journal of Environmental Psychology, 23*, 349-357.
- Paillé, P., & Boiral, O. (2013). Pro-environmental behavior at work: Construct validity and determinants. *Journal of Environmental Psychology, 36*, 118-128.
- Paillé, P., Boiral, O., & Chen, Y. (2013). Linking environmental management practices and organizational citizenship behavior for the environment: A social exchange perspective. *International Journal of Human Resource Management, 24*, 3552-3575.
- Paillé, P., Chen, Y., Boiral, O., & Jin, J. (2014). The impact of human resource management on environmental performance: An employee level study. *Journal of Business Ethics, 121*, 451-466.
- Paillé, P., Mejia-Morelos, J. H., Marché-Paillé, A., Chen, C. C., & Chen, Y. (2015). Corporate greening, exchange process among co-workers, and ethics of care: An empirical study on the determinants of pro-environmental behaviors at coworkers-level. *Journal of Business Ethics*. Advance online publication. doi:10.1007/s10551-015-2537-0
- Podsakoff, P. M., McKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539-569.
- Ramus, C. A., & Killmer, A. B. C. (2007). Corporate greening through prosocial extrarole behaviors: A conceptual framework for employee motivation. *Business Strategy and the Environment, 16*, 554-570.
- Ramus, C. A., & Steger, U. (2000). The roles of supervisory support behaviors and environmental policy in employee "ecoinitiatives" at leading-edge European companies. *Academy of Management Journal, 43*, 605-626.
- Robertson, J. L., & Barling, J. (2013). Greening organizations through leaders' influence on employees' pro-environmental behaviors. *Journal of Organizational Behavior, 34*, 176-194.
- Rotundo, M., & Sackett, P. R. (2002). The relative importance of task, citizenship, and counterproductive performance to global ratings of job performance: A policy-capturing approach. *Journal of Applied Psychology, 87*, 66-80.
- Scherbaum, C. A., Popovich, P. M., & Finlinson, S. (2008). Exploring individual-level factors related to employee energy-conservation behaviors at work. *Journal of Applied Social Psychology, 38*, 818-835.
- Schmit, M. J., Fegley, S., Esen, E., Schramm, J., & Tomassetti, A. (2012). Human resource management efforts for environmental sustainability: A survey of organizations. In S. E. Jackson, D. S. Ones, & S. Dilchert (Eds.), *Managing human resources for environmental sustainability* (pp. 61-80). San Francisco, CA: Jossey-Bass.
- Schneider, B., Ehrhart, M. G., & Macey, W. H. (2013). Organizational climate and culture. *Annual Review of Psychology, 64*, 361-388.
- Scott, W. R. (1995). *Institutions and organizations*. Thousand Oaks, CA: Sage.
- Shamir, B., House, R. J., & Arthur, M. B. (1994). The motivational effects of charismatic leadership: A self-concept based theory. *Organizational Science, 4*, 577-594.
- Shore, L. M., Tetrick, L. E., Lynch, P., & Barksdale, K. (2006). Social and economic exchanges: Construct development and validation. *Journal of Applied Social Psychology, 36*, 837-867.

- Siero, S., Boon, M., Kok, G., & Siero, F. (1989). Modification of driving behavior in a large transport organization: A field experiment. *Journal of Applied Psychology, 74*, 417-423.
- Song, L. J., Tsui, A. S., & Law, K. S. (2009). Unpacking employee responses to organizational exchange mechanisms: The role of social and economic exchange perceptions. *Journal of Management, 35*, 56-93.
- Starik, M., & Marcus, A. A. (2000). Introduction to the special research forum on the management of organizations in the natural environment: A field emerging from multiple paths, with many challenges ahead. *Academy of Management Journal, 43*, 539-546.
- Starik, M., & Rands, G. P. (1995). Weaving an integrated web: Multilevel and multisystem perspectives of ecologically sustainable organizations. *Academy of Management Review, 20*, 908-935.
- Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behavior: An integrative review and research agenda. *Journal of Environmental Psychology, 29*, 309-317.
- Stern, P. C. (2000). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56*, 407-424.
- Tam, V. W. Y., & Tam, C. M. (2008). Waste reduction through incentives: a case study. *Building Research & Information, 36*, 37-43.
- Temminck, E., Mearns, K., & Fruhen, L. (2013). Motivating employees towards sustainable behavior. *Business Strategy and the Environment*. Advance online publication. doi:10.1002/bse.1827
- Unsworth, K. L., Dmitrieva, A., & Adriasola, E. (2013). Changing behavior: Increasing the effectiveness of workplace interventions in creating pro-environmental behavior change. *Journal of Organizational Behavior, 34*, 211-229.
- Van Houten, R., Nau, P. A., & Merrigan, M. (1981). Reducing elevator energy use: A comparison of posted feedback and reduced elevator convenience. *Journal of Applied Behavior Analysis, 14*, 377-387.
- Weiss, H. M., & Beal, D. J. (2005). Reflections on affective events theory. *Emotion, 1*, 1-21.
- Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes, and consequences of affective experiences at work. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 18, pp. 1-74). Greenwich, CT: JAI Press.
- Young, W., Davis, M., McNeill, I. M., Malhotra, B., Russell, S., Unsworth, K., & Clegg, C. W. (2013). Changing behavior: Successful environmental programmes in the workplace. *Business Strategy and the Environment*. Advance online publication. doi:10.1002/bse.1836
- Zhang, Y., Wang, Z., & Zhou, G. (2013). Antecedents of employee electricity saving behavior in organizations: An empirical study based on norm activation model. *Energy Policy, 62*, 1120-1127.
- Zhang, Y., Wang, Z., & Zhou, G. (2014). Determinants of employee electricity saving: The role of social benefits, personal benefits and organizational electricity saving climate. *Journal of Cleaner Production, 66*, 280-287.

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